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39. (Amended) The laser oscillating apparatus according to Claim 31, wherein said circulation system is comprised of at least one blower.

40. (Amended) The laser oscillating apparatus according to Claim 31, wherein said circulation system is comprised of at least one fan.

REMARKS

The claims are claims 1-12, and 17-19, and 20-40 with claims 1, 11, 17, and 30 as being independent. Claims 13-16 have been canceled without prejudice or disclaimer of subject matter. Former independent claims 1, 11, 17 and 30 have been amended to more clearly define the present invention. Support for amended claims 1, 11, 17, and 30 can be found , *inter alia*, on specification page 1, line 9-12; page 19, lines 1-6; page 20, lines 4-19; and lines 23-25; page 29, line 17-24; page 34, line 27 through page 35, line17; and page 36, lines 8-24. Dependent claims 2-10, 12, 18-29, 31-40 have also been amended. Support for amended claims 2-10 and 12 can be found, *inter alia,* on page 1, lines 9-12; page 20, lines 2-25; and page 29, line 20, in addition to the pages listed above. Claims 18, 19, 21-29, and 33-39 have been amended to overcome objections not related to patentability. Accordingly, no new matter has been added. Reconsideration of the claims is expressly requested.

Applicants have amended the title as suggested. Applicants have also amended the specification by changing the term "sound speed" to "speed of sound as suggested by the Examiner. Accordingly, no new matter has been added and withdrawal of the objections are specifically requested.

Applicants have amended claims 18, 19, 21-29, 31, and 33-39 as suggested to overcome the claim objections, specifically by deleting the phrase "said gas supply path structure for supplying said laser gas" in claims 18, 19, and 21-29, and by deleting the phrase "said gas supply path structure group for supplying said laser gas" in claims 21, and 33-39. Accordingly, no new matter has been added and withdrawal of the objection is specifically requested.

Claims 29-40 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 29 and 40 have been amended to remove the trademark/trade name Sirocco as suggested. Claims 31-40 stand rejected as depending upon former claim 30. Claim 30 has been amended to overcome the objection and more clearly define the present invention as discussed above. Withdrawal of the rejection is respectfully requested.

Claims 1, 3-5, 7, 8, 10, 11, 12, 15, 16, 17, 18, 21-24, 28 and 29 stand rejected under 35 U.S.C. § 102 as anticipated by Krasnov (U.S. Patent No. 6, 198, 762). Claims 2, 9, 14, 19, 20, 25, 26, 27 stand rejected under 35 U.S.C. § 103 as obvious over Krasnov alone or in view of Azzola et al. (U.S. Patent No. 6, 212,211) or Sander (U.S. Patent No. 4,317,087).

Claims 30-36, 39 and 40 stand rejected under 35 U.S.C. § 103 as obvious over Krasnov, in view of Ando et al. (U.S. Patent No. 4,911,805), or in further view of Azzola et al. (U.S. Patent No. 6, 212,211). Claims 37 and 38 stand rejected under 35 U.S.C. § 103 as obvious over Krasnov, in view of Ando et al, in further view of Sander et al.

Applicants respectfully traverse the grounds of rejection.

The rejection of claims 15 and 16 under 35 U.S.C. § 102, and claim 14 under 35 U.S.C. § 103, is obviated by cancellation of claims 14, 15, and 16.

Prior to addressing the substantive rejections, Applicants would like to briefly review certain key features and advantages of the present invention. The present invention relates to a fluid circulation system that includes a laser chamber with a gas supply path structure that acts as a laser tube. This gas supply path structure includes a plurality of connected convergent-divergent nozzles shaped to control the acceleration and deceleration of the flow of a laser gas. Further, a waveguide tube is used for exciting the laser gas in the gas supply path structure into a plasma state. The wave guide tube supplies a microwave to the laser gas in the gas supply path structure and a plurality of elongated slots are formed along a bottom portion. The microwave is guided from the upper part of the waveguide tube and the microwave propagates in the waveguide tube to be radiated through the slots to the outside of the waveguide tube. The radiated microwave is guided through the slots and into the gas supply path structure. The microwave then excites the laser gas in the supply path structure to generate an excimer laser light.

The gas supply path structure also includes a pair of reflecting structures which are also used to generate the laser light. The gas supply path structure further includes inlet/out lets ports which serve as a fluid inlet and a fluid outlet depending upon the gas flow.

Krasnov, on the other hand fails to disclose a microwave for exciting a laser gas, and further does not disclose a waveguide for guiding a microwave into a compressible fluid, a fluid or gas supply structure of the present invention. Krasnov, therefore cannot anticipate the present invention and the rejection should be withdrawn. Further, none of

the secondary references remedy the failures of Krasnov. Even if Krasnov is combined with any of the secondary references, the present invention cannot be obtained. The obviousness rejection, therefore, should be withdrawn as well.

With regard to the obviousness rejection of claim 30, the present invention, as discussed above, also includes a light emitting portion for generating a laser beam. See specification page 19, lines 1-6. Further, the excimer laser oscillating apparatus also includes a gas supply path structure group including a pair of gas supply path structures in which a front portion of the gas supply path structure serves as a supersonic gas acceleration portion and the central portion serves as a light emitting portion. See page 34, lines 27 through page 35, line 17. This embodiment allows for the flow of the laser gas to be greater than a speed of sound at the light emitting portion while suppressing the occurrence of shock waves. See specification page 36, lines 8-18. Krasnov fails to teach or suggest these aspects of the present invention, as well as fails to describe a waveguide (as discussed above). As the Examiner admitted, Krasnov does not teach or suggest a group of structures or a paired gas supply path structure group of the present invention.

Further, none of the secondary references remedy the problems of Krasnov. Ando only relates to a method for adjusting the flow speed of fine particles, but does not relate to a laser oscillating apparatus of the present invention. Ando and the other secondary references do not teach or suggest the gas supply path structure group or the light emitting portion of the present invention, therefore cannot disclose the present invention when combined with Krasnov. A case of prima facie of obviousness, therefore, cannot prevail.

Wherefore it is respectfully requested that the claims be allowed and that the case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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VERSION WITH MARKINGS SHOWING THE CHANGES MADE TO THE SPECIFICATION

The paragraph starting at page 3, line 16 and ending at page 4, line 1 has been amended as follows:

The present invention has been accomplished in view of the above problem and an object of the present invention is to provide a gas supply path structure (and a gas supply method) that can suppress occurrence of the shock wave while forming the gas flow at high speed close to the [sound] speed <u>of sound</u> in simple structure. A further object of the present invention is to provide a laser oscillating apparatus with long emission time equipped with the gas supply path structure, an exposure apparatus with high performance equipped with the laser oscillating apparatus, and a method for producing a high-quality device by use of the exposure apparatus.

The paragraph starting at page 4, line 11 and ending at page 4, line 12 as been amended as follows:

a throat portion for controlling said compressible fluid to a speed less than a [sound] speed <u>of sound</u>;

The paragraph starting at page 5, line 26 and ending at page 5, line 27 has been amended as follows:

a predetermined portion for controlling said compressible fluid to a speed less than a [sound] speed of sound;

The paragraph starting at page 6, line 19 and ending at page 6, line 21 has been amended as follows:

a step of controlling said compressible fluid to a speed less than a [sound] speed of sound, at a throat portion of said compressible fluid supply path structure;

The paragraph starting at page 7, line 12 and ending at page 7, line 15 has been amended as follows:

a step of controlling said compressible fluid to a speed less than a [sound] speed of sound, at a predetermined portion of said compressible fluid supply path structure;

A paragraph starting at page 8, line 12 and ending at page 8, line 13 has been amended as follows:

a throat portion for controlling said laser gas to a speed less than a [sound] speed of sound; and

The paragraph starting at page 10, line 8 and ending at page 10, line 9 has been amended as follows:

a central part for controlling said laser gas to a speed greater than a [sound] speed of sound; and

The paragraph starting at page 12, line 1 and ending at page 12, line 2 has been amended as follows:

a throat portion for controlling said laser gas to a speed less than a [sound] speed <u>of sound</u>; and

The paragraph starting at page15, line 25 and ending at page 16, line 2 has been amended as follows:

Fig. 12 is a diagram to show the relation of conditions to gas velocity, Mach number, gas pressure, gas density, gas temperature, and [sound] speed <u>of sound</u> at each of <u>the</u> portions (fluid inlet, light emission portion, fluid outlet) of the gas supply path structure;

The paragraph starting at page 18, line 15 and ending at page 19, line 13 has been amended as follows:

The gas supply path structure 11 is a nozzle which forms a flow path for allowing the laser gas to flow thereinto or out thereof through a pair of inlet/outlet ports 11a, which is shaped so as to be narrowest at the central part, and which controls the laser gas to a predetermined speed less than the [sound] speed <u>of sound</u> (the predetermined speed will be referred to as subsonic speed) at the central part as described hereinafter. Note that a speed greater than the [sound] speed <u>of sound</u> will be referred to as supersonic speed. Here the central part, where the flow velocity of the laser gas reaches the subsonic speed,

serves as a light emitting portion 21 for emitting the laser light. As illustrated in Fig. 3, a pair of reflecting structures 22, 23, which are mirrors, prisms, or the like, are provided above and below this light emitting portion 21 in the figure and these reflecting structures 22, 23 function to align the phase of the light emitted from the light emitting portion 21 to generate the laser light. In the present embodiment the laser gas flows in two directions, i.e., to the left and to the right, in the gas supply path structure 11 and, therefore, the gas supply path structure 11 is symmetric with respect to the center. One of the inlet/outlet ports 11a serves as a fluid inlet and the other as a fluid outlet, depending upon the direction of the gas flow.

The paragraph starting at page 20, line 4 and ending at page 20, line 19 has been amended as follows:

The waveguide tube 12 is a means for supplying a microwave to the laser gas in the gas supply path structure 11 and a plurality of elongated slots are formed in the bottom portion. When the microwave is guided from the upper part of the waveguide tube 12, the microwave propagates in the waveguide tube 12 to be radiated through the slots 24 to the outside of the waveguide tube 12. The microwave thus radiated is guided through the slots 24 provided in the gas supply path structure 11 into the gas supply path structure 11. The microwave thus guided into the gas supply path structure excites the laser gas in the supply path structure 11 to generate the excimer laser light. A RF (radio-frequency) preionization discharge electrode 30 is provided in each of low-conductance portions 27 described hereinafter.

The paragraph starting at page 21, line 8 and ending at page 21, line 25 has been amended as follows:

Eq. (1) is the equation of continuity, Eq. (2) the Bernoulli equation of the isentropic flow, Eq. (3) the adiabatic law of perfect, ideal gas, and Eq. (4) the equation of state of perfect, ideal gas. In these equations ρ represents the density, P the pressure, v the velocity, T the temperature, and A the cross-sectional area. The meanings of subscripts are defined as follows; a character without any subscript represents a value at an arbitrary point in the gas supply path structure 11, a character with subscript "in" a value at the fluid inlet, a character with subscript "out" a value at the fluid outlet, a character with subscript "throut" a value at the throat portion, and a character with subscript "*" a value at a virtual critical point at which the velocity of the gas flow becomes equal to a local [sound] speed <u>of sound</u>. Further, γ represents a ratio of specific heats, V the volume, n the number of moles, and R the gas constant.

The paragraph starting at page 22, line 6 and ending at page 22, line 17 has been amended as follows:

In this structure, when the speed of the gas flow at the throat portion 21 reaches a speed greater than the [sound] speed <u>of sound</u>, there almost always occurs the shock wave at the fluid outlet. In the present embodiment a ratio of pressures at the fluid inlet and at the fluid outlet of the gas in the gas supply path structure 11 is kept not less than a ratio of critical pressures determined by P_{out}/P_{in} satisfying Eq. (5) so that the velocity

of the gas at the throat portion 21 becomes the subsonic speed. Namely, the following relation holds where P'_{out} indicates an actually set pressure at the fluid outlet.

The paragraph starting at page 22, line 26 and ending at page 23, line 17 has been amended as follows:

(Amended) Fig. 5 is a characteristic diagram to show the relation between (cross-sectional area of the fluid outlet/cross-sectional area of the throat portion) and (pressure at the fluid outlet/pressure at the fluid inlet). Since the excimer laser gas is composed mostly of monoatomic gas, the ratio of specific heats γ is assumed to be 5/3. It is a matter of course that an average ratio of specific heats may also be used. Referring to Fig. 5, for example, supposing that the height at the fluid outlet (the vertical width of the fluid outlet) is double the height of the throat portion 21 (the vertical width of the narrowest part) (i.e., supposing a ratio of spatial cross-sectional areas of them is 2), the speed of the gas flow will not exceed the [sound] speed <u>of sound</u>, so as not to cause the shock wave, when the pressure at the fluid outlet is not less than about 0.93 times the pressure at the fluid inlet. For reference the gas speed at the throat portion 21 in the critical state is the [sound] speed <u>of sound</u>.

The paragraph starting at page 23, line 18 and ending at page 23, line 24 has been amended as follows:

The [sound] speed <u>of sound</u> of the gas is a function of gas temperature. In the case of the KrF excimer laser gas, for example, supposing that a mixture ratio of gases

is Ne:Kr:F_2 = 94.9:5:0.1 and assuming that the mixed gas is an ideal gas having the mean molecular weight M (Ne:20.18/Kr:83.8/F_2:38) of 23.4, the [sound] speed of sound a is expressed by the following equation.

The paragraph starting at page 23, line 26 and ending at page 24, Table 1 as been amended as follows:

(Amended) Therefore, the [sound] speed of sound at each temperature is given by Table 1 below.

TABLE 1

Gas temperature		[Sound] speed of sound
°C	K	m/sec
-100	173.15	320.4
0	273.15	402.4
25	298.15	420.4
100	373.15	470.3
200	473.15	529.6
300	573.15	582.9

The paragraph starting at page 24, Fig. 6 and ending at page 25, line 3 has been amended as follows:

Fig. 6 shows the relation of the conditions to the velocity, Mach number, gas pressure, gas density, gas temperature, and [sound] speed of sound at each of the portions (fluid inlet, throat portion, fluid outlet) of the gas supply path structure 11.

The paragraph starting at page 25, line 25 and ending at page 26, line 5 has been amended as follows:

If in the shape of the gas supply path structure 11 there exists an inflection point such as sudden expansion or sudden contraction or the like, there is a possibility that a region at or over the [sound] speed <u>of sound</u> is formed in a portion except for the throat portion 21. Therefore, the gas supply path structure 11 is desirably shaped so as to expand (or contract) relatively gently without a suddenly expanding portion.

The paragraph starting at page 33, line 3 and ending at page 33, line 14 has been amended as follows:

Conversely, the preliminary heating of the laser gas is effective to increase of [sound] speed <u>of sound</u>. However, heating, particularly, of the throat portion 21 (also including heating due to the microwave) should better be avoided, because a choke phenomenon (an apparent decrease of cross-sectional area due to heating) occurs so as to make it difficult to satisfy the designed gas flow rate, though it contributes to the increase of the gas velocity. When this problem due to the heating is pronounced, the operating pressure of the bellows pumps 25 should be changed, because it changes the substantial ratio of cross-sectional areas.

The paragraph starting at page 36, line 8 and ending at page 36, line 24 has been amended as follows:

As described above, the excimer laser oscillating apparatus of Modification 1 uses the paired gas supply path structure group 31 of the convergent-divergent nozzle type in the laser chamber 1 and is arranged to adjust the pressure and velocity of the gas at the inlet and/or at the outlet, so that it can control the velocity of the excimer laser gas in the light emitting portion 32 to the predetermined supersonic speed while suppressing the occurrence of the shock wave, which can occur under almost all the conditions over the [sound] speed <u>of sound</u>. Therefore, the gas supply path structure group can be replenished quickly with the excimer laser gas, which is apt to be exhausted, without concern about the occurrence of the shock wave. Modification 1 can also realize the excimer laser oscillating apparatus that can maintain the stable light emission over a long time.

The paragraph starting at page 38, line 23 and ending at page 39, line 11 has been amended as follows:

As described above, the excimer laser oscillating apparatus of Modification 2 employs the gas supply path structure 41 having the constant height in the laser chamber 1 and is arranged to adjust the pressure and velocity of the gas at the inlet and/or at the outlet, so that it can control the velocity of the excimer laser gas in the light emitting portion to the predetermined supersonic speed, while suppressing the occurrence of the shock wave, about which concern grows with proximity to thc [sound] speed <u>of sound</u>. Therefore, the gas supply path structure group can be replenished quickly with the excimer

laser gas, which is apt to be exhausted, without concern about the occurrence of the shock wave. The present modification can also realize the excimer laser oscillating apparatus that can maintain the stable light emission over a long time.

The paragraph starting at page 40, line 8 and ending at page 40, line 23 has been amended as follows:

As described above, the excimer laser oscillating apparatus of Modification 3 employs the gas supply path structure 11 of the convergent-divergent nozzle type in the laser chamber 1 and is arranged to adjust the gas pressure and the gas velocity at the inlet and/or at the outlet, so that it can control the velocity of the excimer laser gas in the throat portion to the predetermined subsonic speed while suppressing the occurrence of the shock wave, about which concern grows with proximity to the [sound] speed <u>of sound</u>. Therefore, the gas supply path structure can be replenished quickly with the excimer laser gas, which is apt to be exhausted, without concern about the occurrence of the shock wave. The present modification can also realize the excimer laser oscillating apparatus that can maintain the stable light emission over a long time.

The paragraph starting at page 46, line 19 and ending at page 47, line 2 has been amended as follows:

The present invention makes it possible to provide the gas supply path structure (and the gas supply method) capable of suppressing the occurrence of the shock wave while forming the high-speed flow close to the [sound] speed <u>of sound</u> in the simple

structure. Particularly, when this gas supply path structure is applied to the excimer laser oscillating apparatus, the apparatus can be replenished with the excimer laser gas, which is apt to be exhausted, without concern about the occurrence of the shock wave, and the apparatus can maintain the stable light emission over a long time.

VERSION WITH MARKINGS SHOWING THE CHANGES MADE TO THE CLAIMS

1. A compressible fluid circulation system comprising: [supply path structure, said] a compressible fluid supply path structure [being] of a convergent-divergent nozzle type [, said compressible fluid supply path structure comprising:] including a fluid inlet into which a compressible fluid is made to flow, [;] a throat portion for controlling a flow speed of said compressible fluid [to a speed less than a sound speed;]less than a speed of sound, [;] and a fluid outlet of which said compressible fluid from said throat portion is made to flow out; [and]

a circulation [system] unit for circulating said compressible fluid flowing out of said fluid outlet[,] into said fluid inlet[.] ; and

a waveguide unit for guiding microwave into said compressible fluid supply path structure.

2. (Amended) The compressible fluid [supply path structure,] circulation system according to Claim 1, wherein a ratio of a pressure at said fluid inlet to a pressure at said fluid outlet is not less than a ratio of critical pressures.

3. (Amended) The compressible fluid [supply path structure] circulation system according to Claim 1, wherein said compressible fluid supply path structure [which] is shaped so as to decrease disturbance caused by said compressible fluid.

4. (Amended) The compressible fluid [supply path structure,] circulation system according to Claim 1, wherein said compressible fluid supply path structure [which] is a structure without an inflection point.

5. (Amended) The compressible fluid [supply path structure,] circulation system according to Claim 1, further comprising:

at least one pressure correcting means for correcting a pressure at said fluid inlet or at said fluid outlet.

6. (Amended) The compressible fluid [supply path structure,] circulation system according to Claim 5, wherein the correction for the pressure by said pressure correcting means is carried out near said fluid inlet.

7. (Amended) The compressible fluid [supply path structure,] circulation system according to Claim 1, further comprising:

at least one temperature correcting means for correcting a temperature at said fluid inlet or at said fluid outlet.

8. (Amended) The compressible fluid circulation system [supply path structure] according to Claim 7, wherein said temperature correcting means has a cooling function and said cooling is effected near said fluid outlet.

9. (Amended) The compressible fluid circulation system [supply path structure] according to Claim 1, further comprising:

vertical width adjusting means for adjusting a vertical width of said throat portion.

10. (Amended) The compressible fluid circulation system [supply path structure] according to Claim 1, (wherein said compressible fluid supply path structure) is symmetric with respect to said throat portion at the center.

11. A fluid circulation system comprising:

a [A compressible] fluid supply path structure [comprising:] including a fluid inlet into which a [compressible] fluid is made to flow[;] , a predetermined portion for controlling [said compressible fluid] a flow speed of said fluid less than a speed of sound, [to a speed less than a sound speed;] and a fluid outlet of which said [compressible] fluid from said predetermined portion is made to flow out;

a circulation unit for circulating said fluid flowing out of said fluid outlet into said fluid inlet, [;]

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[at least one] a temperature correcting unit [means] for correcting [a] temperature [at said fluid inlet or at said fluid outlet] of said fluid; and

[a circulation system for circulating said compressible fluid flowing out of said fluid outlet, into said fluid inlet.]

a waveguide unit for guiding microwave into said fluid supply path structure.

12. (Amended) The [compressible] fluid circulation system [supply path structure] according to Claim 11, wherein said temperature correcting means has a cooling function and said cooling is effected near said fluid outlet.

17. A laser oscillating apparatus comprising:

a gas supply path structure [for supplying a laser gas, said gas supply structure being] of a convergent-divergent nozzle type, [said gas supply path structure comprising:] including a fluid inlet into which a laser gas is made to flow, [;] a throat portion for controlling [said laser gas to a speed less than a sound speed; and] a flow speed of said laser gas less than a speed of sound, and a fluid outlet of which said laser gas from said throat portion is made to flow out[.] ; and

a waveguide unit for guiding microwave into said gas supply path structure.

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18. (Amended) The laser oscillating apparatus according to Claim 17 [which comprises:

said gas supply path structure for supplying said laser gas,

said gas supply path structure], further comprising:

a circulation system for circulating said laser gas flowing out of said fluid outlet, into said fluid inlet.

19. (Amended) The laser oscillating apparatus according to Claim 17, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said gas supply path structure being arranged so that a ratio of a pressure at said fluid inlet to a pressure at said fluid outlet is not less than a ratio of critical pressures.

21. (Amended) The laser oscillating apparatus according to Claim 17, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said gas supply path structure for supplying said laser gas, said gas supply path structure being a structure without an inflection point.

22. (Amended) The laser oscillating apparatus according to Claim 17, [which comprises:

said laser gas supply path structure for supplying said laser gas,

said gas supply path structure] wherein further comprising:

at least one pressure correcting means for correcting a pressure at said fluid inlet or at said fluid outlet.

23. (Amended) The laser oscillating apparatus according to Claim 17, [which comprises:

said gas supply path structure for supplying said laser gas, said gas supply path structure] further comprising:

at least one temperature correcting means for correcting a temperature at said fluid inlet or at said fluid outlet.

24. (Amended) The laser oscillating apparatus according to Claim 23, [which comprises:

said gas supply path structure for supplying said laser gas] wherein said temperature correcting means has a cooling function and wherein said cooling is effected near said fluid outlet.

25. (Amended) The laser oscillating apparatus according to Claim 17, [which comprises:

said gas supply path structure for supplying said laser gas] wherein said gas supply path structure further comprising:

vertical width adjusting means for adjusting a vertical width of said throat portion.

26. (Amended) The laser oscillating apparatus according to Claim 18, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said circulation system is comprised of at least one bellows pump.

27. (Amended) The laser oscillating apparatus according to Claim 18, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said circulation system is comprised of at least one circulating pump.

28. (Amended) The laser oscillating apparatus according to Claim 18, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said circulation system is comprised of at least one blower.

29. (Amended) The laser oscillating apparatus according to Claim 18, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said circulation system is comprised of at least one fan.

30. A laser oscillating apparatus comprising:

a gas supply structure group [for supplying a laser gas, said gas supply path structure group being of a shape of gas supply path structures of a] including a plurality of connected convergent-divergent nozzles, [type connected in series, said gas supply structure group comprising:] said nozzle each comprising a fluid inlet into which a laser gas is made to flow, [; a central part for controlling said laser gas to a speed greater than a sound speed;and] a throat portion for controlling a flow speed of said laser gas, and a fluid outlet of which said laser gas from said throat portion is made to flow out; and

a waveguide unit for guiding microwave into said gas supply path structure group,

wherein said gas supply structure group includes a light emitting portion for generating a laser beam, and the flow speed of said laser gas at said light emitting portion is higher than a speed of sound.

31. (Amended) The laser oscillating apparatus according to Claim 30, [which comprises:

said gas supply path structure for supplying said laser gas, said gas supply path structure group] further comprising a circulation system for circulating said laser gas flowing out of [said] a fluid outlet of said gas supply path structure group, into [said] a fluid inlet of said gas supply path structure group.

33. (Amended) The laser oscillating apparatus according to Claim 30, [which comprises:

said gas supply path structure for supplying said laser gas,] wherein said gas supply path structure group being a structure without an inflection point.

34. (Amended) The laser oscillating apparatus according to Claim 30, [which comprises:

said gas supply path structure for supplying said laser gas,

said gas supply path structure] further comprising at least one pressure correcting means for correcting a pressure at [said] a fluid inlet of said gas supply path structure group or at [said] a fluid outlet of said gas supply path structure group.

35. (Amended) The laser oscillating apparatus according to Claim 30, [which comprises:

said gas supply path structure group for supplying said laser gas,

said gas supply path structure group] further comprising at least one temperature correcting means for correcting a temperature at [said] a fluid inlet of said gas supply path structure group or at [said] a fluid outlet of said gas supply path structure group.

36. (Amended) The laser oscillating apparatus according to Claim 30, [which comprises:

said gas supply path structure group for supplying said laser gas,

said gas supply path structure group] further comprising vertical width adjusting means for adjusting a vertical width of said <u>throat</u> [central] portion.

37. (Amended) The laser oscillating apparatus according to Claim 31, [which comprises:

said gas supply path structure group for supplying said laser gas,] wherein said circulation system is comprised of at least one bellows pump.

38. (Amended) The laser oscillating apparatus according to Claim 31, [which comprises:

said gas supply path structure group for supplying said laser gas,] wherein said circulation system is comprised of at least one circulating pump.

39. (Amended) The laser oscillating apparatus according to Claim 31, [which comprises:

said gas supply path structure group for supplying said laser gas,] wherein said circulation system is comprised of at least one blower.

40. (Amended) The laser oscillating apparatus according to Claim 31, [which comprises:

said gas supply path structure group for supplying said laser gas]

wherein said circulation system is comprised of at least one [sirocco] fan.

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